

3 providing a precursor brine comprising an aqueous solution of a salt at a first density,
4 said salt comprising cations consisting essentially of cations of one or more
5 multivalent alkaline earth metals [having a first salt content]; and
6 mixing a water-soluble polymer with said precursor brine at a [sufficient] first
7 concentration and under first conditions [sufficient], wherein said first density,
8 said first concentration, and said first conditions are effective to produce a
9 precursor polymer dispersion [wherein] comprising particles of said water-
10 soluble polymer at a level of prehydration;
11 wherein, upon addition of a sufficient quantity of said precursor polymer dispersion
12 to [at a sufficient concentration in] a final brine [having a second salt content],
13 said precursor polymer dispersion produces a final polymer dispersion
14 comprising a second concentration comprising final particles of said water-
15 soluble polymer at a final level of hydration, said second concentration and
16 said final level of hydration being effective at downhole conditions to
17 [improve] maintain an effective level of a property of said final brine selected
18 from the group consisting of rheology, fluid loss control, and a combination
19 thereof.

1 2. (Once amended) A method for producing a precursor polymer dispersion for
2 addition to a brine for use in drilling and completion operations comprising:

3 providing a precursor brine comprising an aqueous solution of a salt at a first density,
4 said salt comprising cations consisting essentially of cations of one or more
5 multivalent alkaline earth metals; and
6 mixing a first concentration of a water-soluble polymer with said precursor brine
7 under first conditions, wherein said first [The method of claim 1 wherein said
8 sufficient] concentration is [between] from about 0.5[-] pounds per gallon to
9 about 4 [lb] pounds of said water-soluble polymer per gallon of said precursor
10 brine, wherein said first density, said first concentration, and said first
11 conditions are effective to produce a precursor polymer dispersion comprising
12 particles of said water-soluble polymer at a level of prehydration;
13 wherein, upon addition of a sufficient quantity of said precursor polymer dispersion
14 to a final brine, said precursor polymer dispersion produces a second
15 dispersion comprising a second concentration of final particles of said water-
16 soluble polymer at a final level of hydration, said second concentration and
17 said final level of hydration being effective at downhole conditions to maintain
18 an effective level of a property of said final brine selected from the group
19 consisting of rheology, fluid loss control, and a combination thereof.

Please cancel claims 4-6.

1 7. (Once amended) The method of claim 1 wherein
2 said [precursor brine comprises a salt selected from the group consisting of calcium salts,
3 magnesium salts, sodium salts, potassium salts, aluminum salts, lithium salts, and

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cont. 4 combinations thereof] salt is selected from the group consisting of calcium chloride,
5 calcium bromide, and combinations thereof]; and

6 said first salt content comprises a initial density about 9-14 pounds per gallon].

Please cancel claim 8.

C3 1 9. (Once amended) The method of claim 3 wherein
2 said [precursor brine comprises a salt selected from the group consisting of calcium salts,
3 magnesium salts, sodium salts, potassium salts, aluminum salts, lithium salts, and
4 combinations thereof] salt is selected from the group consisting of calcium chloride,
5 calcium bromide, and combinations thereof]; and
6 said first salt content comprises a initial density about 9-14 pounds per gallon].

Please cancel claims 10-13.

C4 1 [15] 14. A method for producing a precursor polymer dispersion for addition to a
2 final brine for use in drilling and completion operations comprising:
3 providing a precursor brine [having a first salt content comprising a density of
4 between] comprising [about 9-14 pounds per gallon of a] an aqueous solution
5 comprising a salt selected from the group consisting of calcium chloride,
6 calcium bromide, and combinations thereof, said aqueous solution comprising
7 said salt at a first density of from about 9 to about 14 pounds per gallon; and
8 mixing [between] from about 0.5 [-] to about 4 [lb/gal] pounds per gallon of a water-
9 soluble polymer with said precursor brine under first conditions sufficient to
10 produce a precursor polymer dispersion comprising a first concentration of
11 particles of said water-soluble polymer at a level of prehydration;

12 wherein, upon addition of a sufficient quantity of said precursor polymer dispersion
13 to [effective at a sufficient concentration in] a final brine [having a second salt
14 content] , said precursor polymer dispersion produces a second concentration
15 of final particles of said water-soluble polymer at a final level of hydration,
16 said second concentration and said final level of hydration being effective at
17 downhole conditions to [improve] maintain an effective level of a property of
18 said final brine selected from the group consisting of rheology, fluid loss
19 control, and a combination thereof.

1 [16] 15. (Once amended) A method for treating a high density brine for use in
2 drilling and completion operations comprising:

3 providing a precursor brine comprising an aqueous solution comprising a salt
4 consisting essentially of cations of one or more multivalent alkaline earth
5 metals, said aqueous solution comprising said salt at a first density of from
6 about 9 to about 14 pounds per gallon [having a first salt content];
7 mixing about 1 to about 2 pounds per gallon of a water-soluble polymer with said
8 precursor brine [at a sufficient concentration and] under first conditions
9 sufficient to produce a precursor polymer dispersion comprising a first
10 concentration of particles of said water-soluble polymer at a level of
11 prehydration;

12 wherein, upon addition of a sufficient quantity of said precursor polymer dispersion
13 to [effective at a sufficient concentration in] a final brine [having a second salt

14 content], said precursor polymer dispersion produces a second concentration
15 of final particles of said water-soluble polymer at a final level of hydration,
16 said second concentration and said final level of hydration being effective at
17 downhole conditions to [improve] maintain an effective level of a property of
18 said final brine selected from the group consisting of rheology, fluid loss
19 control, and a combination thereof; and
20 mixing said sufficient concentration of said precursor polymer dispersion with said
21 final brine].

Please cancel [✓]claims 17-20.

1 [22] 21. (Once amended) The method of claim 15 wherein
2 said [precursor brine comprises a salt selected from the group consisting of calcium salts,
3 magnesium salts, sodium salts, potassium salts, aluminum salts, lithium salts, and
4 combinations thereof] salt is selected from the group consisting of calcium chloride,
5 calcium bromide, and combinations thereof; and
6 said first salt content comprises a initial density about 9-14 pounds per gallon].

1 [23] 22. (Once amended) The method of claim [17] 16 wherein
2 said [precursor brine comprises a salt selected from the group consisting of calcium salts,
3 magnesium salts, sodium salts, potassium salts, aluminum salts, lithium salts, and
4 combinations thereof] salt is selected from the group consisting of calcium chloride,
5 calcium bromide, and combinations thereof; and
6 said first salt content comprises a initial density about 9-14 pounds per gallon].

✓
Please cancel claims 24-26.

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Sub 02
1 [27] 26.

(Once amended) A precursor polymer dispersion [for addition to a

2 final brine for use in drilling and completion operations] comprising:

3 an aqueous solution of a salt at a first density, said salt comprising cations consisting

4 essentially of cations of one or more multivalent alkaline earth metals [a first salt

5 content]; and

6 a first concentration of particles of a water-soluble polymer at a level of prehydration [in an

7 amount effective at a sufficient concentration in a final brine having a second salt

8 content to improve];

9 wherein, upon addition of a sufficient quantity of said precursor polymer dispersion to a final

10 brine, said precursor polymer dispersion produces a final polymer dispersion

11 comprising a second concentration comprising final particles of said water-soluble

12 polymer at a final level of hydration, said second concentration and said final level of

13 hydration being effective at downhole conditions to maintain an effective level of a

14 property of said final brine selected from the group consisting of rheology, fluid loss

15 control, and a combination thereof.

✓
Please cancel claim 28.

✓
Please add the following new claims:

1 -29. The dispersion of claim 26 wherein said first concentration is from about 0.5

C7 2 to about 4 pounds per gallon. --

1 --30. The dispersion of claim 26 wherein said first concentration is from about 1 to
2 about 2 pounds per gallon. --

1 --31. The dispersion of claim 26 wherein said density is in the range of from about
2 9 to about 14 pounds per gallon. —

1 --32. The dispersion of claim 26 wherein said density is from about 11 to about 13
2 pounds per gallon. --

1 --33. The dispersion of claim 26 wherein said salt is selected from the group
2 consisting of calcium chloride, calcium bromide, and combinations thereof. —

1 --34. The dispersion of claim 29 wherein said salt is selected from the group
2 consisting of calcium chloride, calcium bromide, and combinations thereof. —

1 --35. The dispersion of claim 30 wherein said salt is selected from the group
2 consisting of calcium chloride, calcium bromide, and combinations thereof. --

1 --36. The dispersion of claim 31 wherein said salt is selected from the group
2 consisting of calcium chloride, calcium bromide, and combinations thereof. --

1 --37. The dispersion of claim 32 wherein said salt is selected from the group
2 consisting of calcium chloride, calcium bromide, and combinations thereof. —

1 --38. The dispersion of claim 26 wherein said one or more multivalent alkaline earth
2 metals are divalent alkaline earth metals.

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cont
1 --39. The method of claim 1 wherein said one or more multivalent alkaline earth
2 metals are divalent alkaline earth metals. --

1 --40. The method of claim 2 wherein said one or more multivalent alkaline earth
2 metals are divalent alkaline earth metals. --

1 --41. The method of claim 15 wherein said one or more multivalent alkaline earth
2 metals are divalent alkaline earth metals. --

1 --42. A method for producing a brine for use in drilling and completion operations
2 comprising:
3 providing a precursor brine comprising an aqueous solution of a salt at a first density,
4 said salt comprising cations consisting essentially of cations of one or more
5 multivalent alkaline earth metals; and

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cont

6 mixing a water-soluble polymer with said precursor brine at a first concentration and
7 under first conditions, wherein said first density, said first concentration, and
8 said first conditions are effective to produce a precursor polymer dispersion
9 comprising particles of said water-soluble polymer at a level of prehydration;
10 wherein, upon addition of a sufficient quantity of said precursor polymer dispersion
11 to a final brine, said precursor polymer dispersion produces a final polymer
12 dispersion comprising a second concentration comprising final particles of said
13 water-soluble polymer at a final level of hydration, said second concentration
14 and said final level of hydration being effective at downhole conditions to
15 maintain an effective level of a property of said final brine selected from the
16 group consisting of rheology, fluid loss control, and a combination thereof;
17 and
18 mixing said sufficient quantity of said precursor polymer dispersion with said final
19 brine.

1 --43. The method of claim 42 wherein said first concentration is from about 0.5
2 pounds to about 4 pounds per gallon. --

1 --44. The method of claim 42 wherein said first concentration is from about 1 pound
2 to about 2 pounds per gallon. —

1 --45. The method of claim 42 wherein said first density is from about 9 to about 14
2 pounds per gallon. --

1 --46. The method of claim 43 wherein said first density is from about 9 to about 14
2 pounds per gallon. --

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cont 1 --47. The method of claim 44 wherein said first density is from about 9 to about 14
2 pounds per gallon. --

1 --48. The method of claim 42 wherein said first density is from about 11 to about
2 13 pounds per gallon. --

1 --49. The method of claim 43 wherein said first density is from about 11 to about
2 13 pounds per gallon. --

1 --50. The method of claim 44 wherein said first density is from about 11 to about
2 13 pounds per gallon. --

1 --51. The method of claim 42 wherein said one or more multivalent alkaline earth
2 metals are divalent alkaline earth metals.


1 --52. The method of claim 42 wherein said salt is selected from the group consisting
2 of calcium chloride, calcium bromide, and combinations thereof. --

1 --53. The method of claim 43 wherein said salt is selected from the group consisting
2 of calcium chloride, calcium bromide, and combinations thereof. —

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cont
1 --54. The method of claim 44 wherein said salt is selected from the group consisting
2 of calcium chloride, calcium bromide, and combinations thereof. --

1 --55. The method of claim 46 wherein said salt is selected from the group consisting
2 of calcium chloride, calcium bromide, and combinations thereof. --

1 --56. The method of claim 49 wherein said salt is selected from the group consisting
2 of calcium chloride, calcium bromide, and combinations thereof. --

1  --57. A precursor polymer dispersion comprising:
2 a precursor brine comprising a salt at density, said salt comprising cations consisting
3 essentially of cations of one or more multivalent alkaline earth metal;
4 a precursor polymer dispersion in said precursor brine comprising a first
5 concentration of particles of a water-soluble polymer at a level of
6 prehydration;

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cont

7 wherein, upon mixing of a sufficient quantity of said precursor polymer dispersion
8 with a final brine, said precursor polymer dispersion produces a second
9 concentration of final particles of said water-soluble polymer at a final level
10 of hydration, said second concentration and said final level of hydration being
11 effective at downhole conditions to maintain an effective level of a property
12 of said final brine selected from the group consisting of rheology, fluid loss
13 control, and a combination thereof. --

1 -- 58. The precursor polymer dispersion of claim 57 wherein said one or
2 more multivalent alkaline earth metals are divalent alkaline earth metals. --

1 -- 59. The method of claim 2 wherein said first concentration is from about
2 1 pound to about 2 pounds per gallon. --

1 -- 60. The method of claim 1 wherein said density is from about 9 to about
2 14 pounds per gallon. --

1 -- 61. The method of claim 2 wherein said density is from about 9 to about
2 14 pounds per gallon. --

1 -- 62. The method of claim 1 wherein said density is from about 11 to about
2 13 pounds per gallon. --